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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,884	01/10/2001	Shoji Tsuzuki	107927	1918

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EXAMINER	
KEBEDE, BROOK	
ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/671,884	TSUZUKI, SHOJI	
	Examiner	Art Unit	
	Brook Kebede	2823	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *4,10 and 16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-9 and 11-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. The rejection that was mailed on May 15, 2003 withdrawn upon the foreign priority papers translation of said papers has been made of record in accordance with 37 CFR 1.55.

Allowable Subject Matter

2. The indicated allowability of claims 5-9 and 11-15 is withdrawn in view of the newly discovered reference(s) to Santadera et al. (US/5,514,613). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 5-7, 11, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Santadrea et al. (US/5,514,613).

Re claim 1, Santadrea et al. disclose a method of manufacturing a connection substrate, comprising steps of: forming a metal wire (29) on a base (not shown) (see Col. 4, lines 47-67) ; applying an insulating material (20 22 24 25) onto the metal wire (29) to form an insulation layer (20 22 24 25); forming another metal wire (21 23 25) on the insulation layer (20 22 24 25), thereby connecting the metal wires which sandwich the insulation layer (20 22 24 25), through a contact hole (not labeled) formed in the insulation layer (20 22 24 25); and separating the metal wires and the insulation layer from the base (not labeled) (see Figs. 1-3; Col. 2, line 59 – Col. 7, line 35).

Re claim 2, as applied to claim 1 above, Santadrea et al. disclose all the claimed limitations including the limitation wherein the step of applying an insulating material onto the metal wire, and the step of forming another metal wire, thereby connecting the metal wires are repeated at least two times (see Figs. 1-3; Col. 2, line 59 – Col. 7, line 35).

Re claim 5, Santadrea et al. disclose a method of manufacturing a semiconductor device, comprising: a step of forming a connection substrate on a base, comprising, forming a metal wire (29) on a base (not shown), applying an insulating material (20 22 24 25) onto the metal wire (29) to form an insulation layer (20 22 24 25), and forming another metal wire (21 23 25) on the insulation layer (20 22 24 25), thereby connecting the metal wires which sandwich the insulation layer (20 22 24 25) through a contact hole (not labeled) formed in the insulation layer (20 22 24 25); a step of mounting a semiconductor chip on the metal wire which is bared (12A...12M) (see Fig. 3); and a step of separating the connection substrate from the base (see Figs. 1-3; Col. 2, line 59 – Col. 7, line 35).

Re claim 6, as applied to claim 5 above, Santadrea et al. disclose all the claimed limitations including the limitation wherein a plurality of the semiconductor chips are mounted on the connection substrate (see Figs. 1-3; Col. 2, line 59 – Col. 7, line 35).

Re claim 7, as applied to claim 5 above, Santadrea et al. disclose all the claimed limitations including the limitation wherein in the step of forming a connection substrate, the step of applying an insulating material onto the metal wire and the step of forming another metal wire, thereby connecting the metal wires are repeated at least two times (see Figs. 1-3; Col. 2, line 59 – Col. 7, line 35).

Re claim 11, Santadrea et al. diselose a method of manufaeturing a semiconductor deviee, comprising: a step of forming a connection substrate on a base, eomprising, forming a metal wire (29) to be connected to an electrode (12A...12M) formed on a semieonductor chip (10), on a first base (not shown), applying an insulating material (20 22 24 25) onto the metal wire (29) to form an insulation layer (20 22 24 25) , and forming another metal wire (21 23 25)on the insulation layer (20 22 24 25), thereby eonneeting the metal wires which sandwich the insulation layer (20 22 24 25), through a contact hole (not labeled) formed in the insulation layer; a step of disposing a seeond base (26) on the connection substrate; a step of separating the first base from the connection substrate; a step of mounting a semiconductor chip on the metal wire that is bared; and a step of separating the connection substrate from the, second base (see Figs. 1-3; Col. 2, line 59 - Col. 7, line 35).

Re claim 14, as applied to claim 11 above, Santadrea et al. disclose all the claimed limitations including the limitation wherein a plurality of the semieonductor chips are mounted on the connection substrate (see Figs. 1-3; Col. 2, line 59 - Col. 7, line 35).

Re claim 15, as applied to claim 11 above, Santadrea et al. disclose all the claimed limitations including the limitation wherein in the step of forming a conneetion substrate: the step of applying an insulating material onto the metal, and the step of forming another metal wire, thereby conneeting the metal wires are repeated at least two times (see Figs. 1-3; Col. 2, line 59 - Col. 7, line 35).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3, 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Santadrea et al. (US/5,514,613) in view of Cronin et al. (US/5,530,262)

Re claim 3, as applied to claim 1 above, Santadrea et al. disclose all the claimed limitations including providing the interconnect on the base and removing the base. However, Santadrea et al. do not specifically disclose a base being glass.

Cronin et al. disclose providing the base (i.e., commonly known as substrate) (18) (see Figs. 4a --13a) during fabrication metal interconnects. As Cronin disclose, the base such as glass, metal, ceramic, silicon etc. selected so that it can withstand high temperature during device fabrication (see Cronin et al. Col. 5, lines 32-52). So that one of ordinary skill in the art would have motivated to use a base substrate such as glass, metal, ceramic, silicon etc. because it can withstand high temperature during device fabrication.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Santadrea et al. reference with glass base (substrate) as taught by Cronin et al. because the glass substrate would have withstand high temperature during device fabrication.

Re claims 8 and 9, as applied to claim 5 above, Santadrea et al. disclose all the claimed limitations including providing the interconnect on the base and removing the base. However, Santadrea et al. do not specifically disclose a base being glass or silicon.

Cronin et al. disclose providing the base (i.e., commonly known as substrate) (18) (see Figs. 4a –13a) during fabrication metal interconnects. As Cronin disclose, the base such as glass, metal, ceramic, silicon etc. selected so that it can withstand high

temperature during device fabrication (see Cronin et al. Col. 5, lines 32-52). So that one of ordinary skill in the art would have motivated to use a base substrate such as glass, metal, ceramic, silicon etc. because it can withstand high temperature during device fabrication.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Santadrea et al. reference with glass or silicon base (substrate) as taught by Cronin et al. because the glass or silicon substrate would have withstand high temperature during device fabrication.

Re claims 12 and 13, as applied to claim 11 above, Santadrea et al. disclose all the claimed limitations including providing the interconnect on the base and removing the base. However, Santadrea et al. do not specifically disclose a base being glass or silicon.

Cronin et al. disclose providing the base (i.e., commonly known as substrate) (18) (see Figs. 4a -13a) during fabrication metal interconnects. As Cronin disclose, the base such as glass, metal, ceramic, silicon etc. selected so that it can withstand high temperature during device fabrication (see Cronin et al. Col. 5, lines 32-52). So that one of ordinary skill in the art would have motivated to use a base substrate such as glass, metal, ceramic, silicon etc. because it can withstand high temperature during device fabrication.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Santadrea et al. reference with glass or silicon base (substrate) as taught by Cronin et al. because the glass or silicon substrate would have withstand high temperature during device fabrication.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3, 5-9, and 11-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. THIS ACTION IS MADE **NON-FINAL**.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Leedy (US/5,571,741).

Correspondence

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede
November 15, 2003

W. DAVID COLEMAN
PRIMARY EXAMINER